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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,518	11/08/2001	Kyung Joon Han	11188.00	8814

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EXAMINER

HO, HOAI V

ART UNIT PAPER NUMBER

2818

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,518

Applicant(s)

HAN ET AL.

Examiner

Hoai V. Ho

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-- **Th MAILING DATE of this communication appears on the cover sheet with th correspondence address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 7-17 and 19-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____.

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1. This office acknowledges receipt of the following items from the Applicant:

Information Disclosure Statement (IDS) was considered.

2. Claims 1-6 and 18 are presented for examination.

Claim 19 has been placed in Group II as suggested by the Applicant.

Election/Restriction

3. Claims 7-17 and 19-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention/species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Claim Rejections - 35 USC § 112

4. Claims 1 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: There is no voltage to apply to drain and source regions of the first and second memory cells in order to program using channel hot electron injection.

Claims 2-6 are rejected due to the rejections of the parent claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 5 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by

Brahmbhatt USP 5457652.

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Figure 2A and 3 of Brahmhatt are directed to a method of programming a memory array that comprises a plurality of memory cells coupled to a plurality of word select lines (WL0-WLN), each of the memory cells having an adjustable threshold voltage and a gate (54) overlying a channel (44A) and being programmable using channel hot electron injection (col. 4, line 2), the method comprising: applying a first voltage to the channels (Vss); establishing a voltage differential across the respective channels of at least a first (38 connecting to WL2) and a second of the memory (a cell connecting to WL1) cells, the potential differential being sufficient to generate channel hot electrons in the respective channels thereof; applying a second voltage (12V) to the gate of the first memory cell, the second voltage having a polarity and magnitude relative to the first voltage sufficient to attract the hot electrons and change the threshold voltage of the first memory cell to a programmed state; and applying a third voltage (Vss or -3 V to -4 V) to the gate of the second memory cell, the third voltage having a polarity and magnitude relative to the first voltage sufficient to repel the hot electrons and deter change in the threshold voltage of the second memory cell. See Table 1 in column 5.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 2, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brahmbhatt USP 5457652.

Figure 2A of Brahmbhatt discloses the first voltage (wells or substrate) is about 0 volts and the fourth voltage (source) is about 0 volts except for the second voltage is about 10.5 volts, the third voltage is about -1.5 volts, the fourth voltage is about 0 volts, and the fifth voltage is about 4.5 volts.

However, programming in Table 1 in column 5 of Brahmbhatt discloses the second voltage is about 12 volts, the third voltage is about V_{ss} or -3 to -4 volts, and the fifth voltage is about 6.5 to 7 volts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use either a set of first to fifth voltages as the claimed invention or another set of first to fifth voltages as Brahmbhatt taught for programming a select memory cell and non-select memory cell in the memory array because it would perform the same function to program using channel hot electron injection in the memory array.

9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

10. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02 (b)).

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (703) 308-4839. Other inquiries of this application should be called to (703) 308-0956 or the fax number (703) 308-7722.



H. Ho
May 28, 2003



Hoai V. Ho
Primary Examiner
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